DEFENSE CENTERS OF EXCELLENCE
For Psychological Health & Traumatic Brain Injury

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Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury and Defense and Veterans Brain Injury Center

Cognitive Rehabilitation for Mild Traumatic Brain Injury Consensus Conference Summary of Clinical Recommendations

- **Goal: To provide guidance regarding cognitive rehabilitation of chronic post-concussive symptoms in Service members and Veterans receiving treatment within military medical settings.**
- This guidance addresses the needs of the Service member or Veteran who is 3 months or more post-concussive injury and has persistent cognitive symptoms.
- The recommendations contained in the document are divided into four areas: assessment, interventions, outcome measures, program implementation.
- The term cognitive rehabilitation is used synonymously with neurorehabilitation, neuropsychological rehabilitation, cognitive remediation and cognitive retraining.
- The full guidance document can be accessed at: http://www.dcoe.health.mil/ForHealthPros/Resources.aspx

Assessment: Part 1 – Initial Evaluation

- Purpose: To determine if the individual has a history of mild traumatic brain injury (TBI) (also known as concussion) with persistent cognitive symptoms or signs of cognitive impairment and to determine if any co-morbidities exist that may affect cognitive function.
- Performed by a TBI-experienced provider in the primary care setting who is also familiar with other deployment-related health conditions.
- Referral to the initial evaluation can be made by any provider.
- Reasons for referral: cognitive symptoms observed by the provider or reported by the patient, family, or leadership. Referral may also be made even if the patient does not report cognitive symptoms but displays evidence of cognitive dysfunction in daily social or occupational functioning.
- Any suspicion of mild TBI with persistent cognitive symptoms warrants further cognitive evaluation.

Assessment: Part 2 – Comprehensive Cognitive Evaluation

- Purpose: To determine 1) the primary factor contributing to symptoms, 2) cognitive deficits, 3) the need for cognitive rehabilitation, 4) the type of rehabilitation needed and 5) the short- and long-term goals.
- Performed by an interdisciplinary group (resource dependent): neuropsychologist, occupational therapist, speech-language pathologist.
- Includes a comprehensive neurological evaluation performed by a neurologist or physician with expertise in and knowledge of cognitive symptoms.
- Includes a review of the medical records to look for prior cognitive disorders.

Interventions

- Interventions should target attention, memory, executive functioning and social pragmatics as these are the most common cognitive domains affected by TBI.
- Attention is the prerequisite for basic and complex behaviors involving memory, judgment, social perception and executive skills.
- Interventions should be based on a holistic approach and include individual and group therapies within an integrated therapeutic environment.
- Specific examples of empirically-supported interventions are contained in the full guidance document.

Program Implementation

- Ideal cognitive rehabilitation team: holistic, interdisciplinary team, including a designated team leader, competent in brain injury rehabilitation and military culture and capable of developing a therapeutic alliance with patients.
- Core elements of a successful program:
  - Assessment prior to treatment
  - Identification of individualized cognitive rehabilitation goals that target symptom reduction through restoration and compensation, functional improvements/gains, and a therapeutic alliance
  - Development of an interdisciplinary individualized treatment plan
  - Periodic cognitive reassessment and review of goals
  - Development of a well defined discharge plan

Outcome Measures

- Cognitive rehabilitation programs must describe outcomes in order to advance the published science.
- Recommended outcome measures are outlined in the full document and include: administrative performance metrics, pre- and post-assessment differences, pre- and post-functional differences, moderating variables, discharge criteria, consumer satisfaction and aggregate program outcome data.

ASSESSMENT: INITIAL EVALUATION

- Description of injury event
- Duration of loss of consciousness or altered mental status
- Confirmation of mild TBI diagnosis
- Evaluation of ongoing symptoms
- Mental health evaluation
- Evaluate for chronic pain, sleep disorders and substance abuse
- Measures of effort

OUTCOME #1

The patient does not have any cognitive symptoms. Education and reassurance to the referring provider and the patient.

OUTCOME #2

No indication that the patient sustained a mild TBI but cognitive symptoms are present. Refer patient back to primary care provider for further evaluation of a medical or mental health condition.

OUTCOME #3

The patient has co-morbidities or other symptoms that are too severe for him/her to undergo cognitive assessment.
*If referred to specialty clinic, assign case manager and re-evaluate in 4 weeks.
*If referred to specialty clinic and all cognitive symptoms resolve, case manager to follow via phone for 6 months to ensure symptoms remain resolved.

OUTCOME #4

The patient sustained a mild TBI and has symptoms that warrant <u>further comprehensive cognitive evaluation.</u>

COMPREHENSIVE COGNITIVE EVALUATION

- Comprehensive neurological evaluation to occur prior to comprehensive cognitive evaluation

Assessment domains:

- Attention
- Memory
- Processing speed
- Executive functioning (reasoning, problem solving, organizing, planning, self-monitoring, emotional regulation)
- Post-traumatic stress disorder screen
- Post-concussive syndrome symptom rating
- Pain screen
- Symptom validity test
- Substance abuse screen
- Measures of effort

DETERMINE THE TREATMENT PLAN UPON COMPLETION OF THE COMPREHENSIVE COGNITIVE ASSESSMENT

- Primary factor contributing to symptoms (i.e., is mild TBI the primary cause of the symptoms or is a co-morbidity such as major depression considered the primary contributor)
- Cognitive deficits associated with diagnosis of mild TBI
- Need for cognitive rehabilitation
- Type of rehabilitation needed
- Short- and long-term goals of rehabilitation

INTERVENTIONS

Area of cognitive impairment	**Empirically-supported interventions**
Attention	Attention process training Working memory training
Memory	Various mnemonic techniques Visual imagery mnemonics
Attention Memory Executive functioning	Memory notebook External cuing
Executive functioning Social pragmatics	Social communication skills training groups
Attention Memory Executive functioning Social pragmatics	Problem solving training Error management training Emotional regulation training Integrated use of individual and group interventions